

Take the longer, larger view

There is something wrong in the way we frame the problem of air pollution. We look for Delhi-centric, knee-jerk solutions

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OVER the past few months, we have been bombarded with information that the air in Delhi is horrible and too many of us suffer from all kinds of diseases. All true. What is not true is that Delhi is the worst place to live in India. What is also not true is that the knee-jerk solutions offered will drive away all the foul air in a hurry.

There are millions of Indians living in cities and settlements with much worse air and soil conditions than those in Delhi. Hundreds of towns with foundries, quarries, mines, chemical industries (thrown out of fancier cities) and power stations suffer a fate much worse than us.

Our current obsession centres on pollution caused by the increasing number of motor vehicles in Delhi. We are told that there are about 2.9 million cars, taxis and jeeps and 5.7 million two-wheelers registered in Delhi. This amounts to an average of more than two vehicles per family, including all those living in *jhuggis* and *jhopris*. This is just not possible, as Census data informs us that no more than 58 per cent of families own a

motor vehicle. To find out which number is true, we conducted sample surveys in Delhi, Rajkot and Vishakhapatnam to estimate the actual number of vehicles on the road. Our results are reasonably consistent across cities and suggest that the actual number of vehicles existing in these cities is about half the official number. These results are similar to the estimates mentioned in R.A. Mashelkar Auto Fuel Policy Report published over a decade ago. It appears that the official number of private motor vehicles is the cumulative number of vehicles ever registered in Delhi. No one ever deregisters a vehicle, as we don't have to pay an annual registration tax. Therefore, if anyone's emission calculations are based on official numbers, they would overestimate the transportation component.

If we use the corrected number for cars, we get a statistic of eight cars per hundred persons in Delhi. Similar statistics for London and Singapore are 31 and 12 respectively. Cars do an annual mileage of about 12,000 km per year in Delhi, whereas the number for Singapore is 18,000 km. Journeys by cars in Delhi constitute less than 15 per cent of trips, whereas in London and Singapore, they are more than 30 per cent. The average age of cars in Delhi is estimated at 4.7 years, about half that in London and Singapore. When car ownership, car age, car use and distance travelled in cleaner cities like Singapore and London is

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much higher than Delhi, then why is our air much dirtier?

Clearly, there must be something wrong in the way we are looking at the problem. There must be different sources of pollution for different kinds of emissions and focusing on any single source with quick-fix solutions hasn't worked. Detailed work done by my colleagues S.K. Guttikunda, G. Tiwari and R. Goel over the past few years gives us some pointers. The estimates show that: PM 2.5 is contributed in about equal measure by transport, brick kilns, industry and power plants (14-17 per cent each) followed by gensets, road dust, construction, domestic waste burning (5-12 per cent each); SO₂ mostly by power plants (55 per cent), industry (23 per cent) and brick kilns (11 per cent); and NO_x by transport (53 per cent), gensets (25 per cent) and industry (11 per cent). Estimates for light and heavy trucks' contribution to PM 2.5, NO_x, CO, VOC are 11 per cent, 33 per cent, 3 per cent, 11 per cent respectively.

Even if these estimates are off by



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some percentage points, they do give a clear signal. Pollution in our cities and villages is not going to be reduced in a hurry. Certainly not by focusing on Delhi alone, and not by diluting our national environmental clearance norms. For example, even if we did not let any trucks enter Delhi, the quality of air would improve by less than 10 per cent, but significantly worsen the lives of those living in villages and towns

along the bypasses. The overall health of Indian citizens may not improve at all. Similarly, banning cars more than 15 years old will not make any difference at all, because their numbers are insignificant.

The only way out is to develop a long-term policy that cuts across all sectors contributing to pollution. Such policies must be nationwide and target problems at source. The most effective policy would be to set

ambitious targets to provide the cleanest petrol and diesel of the same quality all over India. This would reduce pollution significantly from vehicles, industry, gensets and construction at the same time. After the assurance of clean fuels is in place, we must force the auto industry to adopt Bharat VI fuel emission norms for all vehicles by 2020 by an accelerated programme of technology upgradation. In parallel, well-funded technological task forces need to be set up to do detailed studies to reduce energy consumption and emissions from brick kilns, construction and the domestic sector.

However, just focusing on technologies alone is not enough. A few years ago, we did a joint study in collaboration with the London School of Hygiene and Tropical Medicine to forecast pollution and health scenarios in Delhi and London in 2030. In both settings we found that the transportation scenarios that reduce greenhouse gas emissions by reducing motor vehicle use and increasing active travel (walking, cycling, public transport) bring much larger health benefits than those that focus on the uptake of cleaner motor vehicles. Motor vehicle ownership appears to have stabilised in London, but it will not for some time in Delhi. Therefore, increase in vehicle numbers in Delhi overpowers technology-based solutions. The trick is to move towards relatively less use of private motor vehicles even if

ownership may increase.

Studies from Europe indicate that vehicular pollution in a city is directly related to the total area devoted to roads for cars and motorcycles. This is because roads always get filled up with vehicles as soon as more space is provided. We have ample evidence of this from the roads being jam-packed with vehicles along metro corridors in Delhi. The successful solutions being implemented are to reduce space for cars along the congested corridors by reserving lanes for trams or buses, even on narrow roads, and reducing parking availability and making it expensive. This reduces car use, particularly if spaces for walking and cycling are made safer and more attractive.

We have not touched upon other solutions that involve mixed land use planning, mixing of rich and poor neighbourhoods, discouraging gated communities, smoothening traffic flow at relatively lower velocities with appropriate road design, and having smaller blocks in city design. All these will go a long way in improving the quality of life, decreasing fuel consumption and reducing pollution. But they will not come overnight.

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